

April 26, 2010

Ms. Dana Dean
Associate Director of Mining
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Sent via email: danadean@utah.gov

Hard copy mailed US Post with compact disc Note: underlines are hyperlinked references

Re: Tentative decision to approve a large mining and reclamation plan for Earth Energy Resources, Inc., at PR Spring Mine No. M/047/0090 in Uintah and Grand Counties.

Dear Ms. Dean:

This is to notify Utah Division of Oil, Gas and Mining (DOGM) that Living Rivers, Center for Biological Diversity, Peaceful Uprising, and Red Rock Forests are filing a Request for Agency Action pursuant to Utah Code Ann. 63G-4-201, Utah Admin. Code R647-5-104 (1.12) and (2.13) and R647-5-106, challenging the Division's May 20, 2009 decision to approve the Notice of Intention (NOI) to Commence Large Mining Operations of tar sand deposits in the vicinity of PR Springs in Grand and Uintah Counties (aerial photo).

Protesters Living Rivers, Center for Biological Diversity, Peaceful Uprising, and Red Rock Forests have a vital interest in the proposed action, are directly aggrieved by such, and have members that are directly aggrieved by the agency action. Our members live in, recreate, and hunt in the area and region involved, and would be directly affected by the environmental, public health, and recreational impacts of the decision and mining operation. Members also have a significant stake in water rights and streamflows in the affected area, and in ensuring sufficient flows of non-polluted

water for drinking supplies, recreational needs and endangered species. Protesters also invoke standing by right pursuant to relevant statutes and regulations of the State of Utah and the United States, and pursuant to the notice posted by the Division in the Moab Times-Independent dated March 25, 2010.

As taxpayers and citizens of Grand and Uintah Counties and the State of Utah, we have vital interest in knowing how state approved actions on SITLA (School Institutional Trust Lands Administration) lands return the most value to the school trust and preserve the sustainability and value of the land ensuring that the highest and best use for future generations. As citizens and users of the area, locally and regionally, we need to be assured that the pristine air quality is preserved to protect the public health, safety and welfare of Utah citizens and visitors. Grand County in particular depends heavily on a vibrant tourist industry that values clean air in the region, specifically in Arches and Canyonlands National Parks.

We further note that DOGM failed to properly and <u>legally notify Grand County</u> regarding the tentative approval of the operation, which further prejudiced the general public's ability to properly comment on the NOI.

In our review of the NOI filed by <u>Earth Energy Resources</u> (EER), we submit that the document is incomplete, the Operation Plan will not reclaim the mine as required in <u>Utah Code Title 40</u>, and that the proposal and operation will likely pollute the groundwater of the Uinta Basin and the surface water of the Green River and create water right conflicts. It is also likely that this operation will impair local and regional air quality, along with critical habitat for endangered species.

Furthermore, the energy required to strip mine and process low-grade hydrocarbons will significantly increase carbon dioxide emissions in the atmosphere which, for the Colorado River basin, is the root cause for the decreasing annual yield of surface water for downstream users. Reduced streamflow is also interfering with the goals and investments of regional water rights and delivery, salinity control and the recovery programs for endangered species.

Corporations and government agencies must abandon traditional petroleum-based energy programs and invest their time and resources in developing energy products that do not conflict with the fundamental water supplies and programs of Colorado River basin, or with national and international goals and programs to reduce greenhouse gas emissions that contribute to global warming and regional climate change.

We are formally requesting a hearing before the Division to address the issues described in greater detail below.

INTRODUCTION

We understand that PR Springs Mine will affect approximately 213 acres of SITLA and private lands, specifically in portions of Sections 35 and 36, Township 15 South, Range 23 East, and Sections 31 and 32, Township 15.5 South, Range 24 East.

The design drawings show both a 62-acre initial site (North Pit) and a follow-on 31-acre site (West Pit). However, the permits for water and air quality only focus on the North Pit and not the West Pit. It is possible that different permitting requirements could apply if the cumulative impacts for entire 93-acre mine were assessed, rather than approached in this piecemeal fashion.

The process is designed to strip mine 3,000-3,500 tons of ore per day, which will produce 2,000 barrels of bitumen per day. Separating the bitumen from the ore is performed on-site using a proprietary chemical wash. Water consumption for on-site processing is required, since the waste has a moisture content of approximately 18%. We understand the ratio of water to bitumen for production is approximately 1.2 to 2.0 (water) to 1 (bitumen).

Willow Creek, which is downstream from the mine, is already on the State's 303(d) list as an impaired tributary and for reasons of total dissolved solids (TDS). The Utah Department of Water Quality (DWQ) issued a permit based on an assessment of a 5-acre experimental mine and not on the proposed mine of 93-acres. Data are lacking to support or refute the company's claims that they will not further impair the water quality of Willow Creek.

EER will provide to UDOGM a <u>reclamation bond</u> before mining operations commence. Managing erosion on a high plateau dominated by natural mass wasting processes is a serious challenge, yet ERR has assured DOGM there will be no discharge from the process pond, that sediment controls will be used in remote areas through best management practices.

EER will create two overburden stockpiles from the waste rock as valley-filled dumps, but future mine expansion will backfill the previous mine pits (photo). Pit slope angles are not to exceed 2 (horizontal) to 1 (vertical). A valley-filled dump is similar to the practice now occurring at the coal mining districts of Appalachia, which are highly controversial.

All processing facilities will be removed by EER following mining and either recycled or hauled to a disposal facility. The mine dumps will be graded down to slopes less steep than 2.5 (horizontal) to 1 (vertical). Other areas will also be graded to slopes that blend with surrounding areas. Following regrading, disturbed areas will be covered with about six inches of soil and seeded with a mix that includes both native and introduced species adapted to the area. Considering how soil resources on the Colorado Plateau

are probably the least abundant of all resources, this poses a serious management challenge for EER.

Additionally, EER assures DOGM that air quality will be protected through best management practices. We understand the EPA has recently determined the mine is not subject to New Source Performance Standards Subpart Ja, for reasons that on-site refining is a preliminary process to accommodate the transport of the bitumen to a off-site petroleum refinery. However, the permit process cited by both EPA and the State is based on the criteria of an oil & gas drilling pad, which is a considerably different kind of operation compared to the strip mining tar sands.

GEOGRAPHY

The Uinta Basin is the most northern sub-province of the greater Colorado Plateau. The basin's southern boundary is the Book Cliffs, which is the longest, continuous escarpment in the world. The sub-province south of the Book Cliffs is called Canyonlands, which has a large concentration of national parks and monuments with impaired standards of air quality.

The Uinta Basin's northern boundary is the Uinta Mountains, which is a range of the greater Rocky Mountains, but with an east-west axis. The mountain peaks are named after the geologists and geographers of the four national surveys that followed the Civil War, which were later consolidated into the US Geological Survey in 1879. The tallest peak (13,528 feet) is named after the first director of the USGS, Clarence King.

The Colorado Plateau is basically a bowl-shaped geophysical province. The major tributaries of the Colorado River convene in the heart of the province, southeast Utah, and then plunge into Lake Powell, the second largest human-made reservoir in the USA. The Colorado River breaches the Colorado Plateau in the lower Grand Canyon to plunge into Lake Mead, the largest human-made reservoir in the USA. Once the river water passes through Hoover Dam, it is distributed as culinary water for 25 million people and also irrigates about 4 million acres of agricultural lands.

Though 25 rivers in the USA are bigger than the Colorado River, the cities supported by its water supply provide 10% of the Gross Domestic Product. Unfortunately, the Colorado River is also the most vulnerable river in the USA, because it is entirely dependent on a complex array of engineering marvels in the form of dams, diversions and aqueducts. It is also absolutely essential that the water supply remain free of toxins and pollutants, because the only drinking water alternative is ground-water, which has been dangerously depleted and not presently sustainable.

If not for the small towns along the corridors of US Highway 40 and 191, the Uinta Basin would be unpopulated. Indeed, the Tavaputs Plateau section of the Uinta Basin is the most uninhabited place in the contingent United States. The bulk of the Tavaputs Plateau is high in elevation (8,000 to 10,000 feet) and consists mainly of Teritary and

Cretaceous aged rocks. It is considered by the oil and gas industry as a national sacrifice zone, but its function as a watershed to the Colorado River is considered by others as priceless.

Surface water and unconfined ground-water in the Tavaputs Plateau generally flows into the Green River, which is the most major tributary of the Colorado River. The immediate drainage for the proposed project is Willow Creek, which enters the Green River above Desolation Canyon.

The slopes of the Tavaputs Plateau have Douglas fir, spruce-fir, aspen, ponderosa pine, Gamble oak, pinyon pine, and juniper; the canyon bottoms have cottonwood, willow, and box elder. The brushy plants include black sagebrush, big sagebrush, mountain brush, and the grasslands are Salina wildrye.

The Uinta Basin is critical habitat to four fish species, of which the federal and state governments have invested hundreds of millions of dollars to recover; avian species in the Uinta Basin include Mexican spotted owl and sage grouse; plant species include Graham's penstemon.

HYDROLOGY

Utah is part of the Great Basin Desert and the second driest state in the union, preceded by Nevada. Except in the mountains and the high plateaus, evaporation exceeds rainfall by six to seven times. Yet intensive summer cloudbursts in tributary drainages of the Colorado Plateau can exceed the entire daily mean flow of the Colorado River (Woolley). Debris flows (failure of colluvial wedges on steep slopes during a cloudburst) occur at higher frequency in Tertiary and Cretaceous formations (the dominate rock of the Tavaputs Plateau) than any other rock strata of the Colorado Plateau (Webb et al).

The water quality of the Colorado River in the Rocky Mountain headwaters is nearly pristine, which is lost once the river strikes the Colorado Plateau. The mass wasting of the Plateau introduces tremendous loads of sediment and dissolved solids into the river, hence the infamous quote, "Too thick to drink, too thin to plow." The Green River produces less water than the Colorado River, but produces more sediment (Andrews).

Since the Colorado River Compact was signed in 1922, the annual yield of the Colorado River has declined by 2 million acre-feet (Webb et al) (graphic). Since the advent of a positive Atlantic Multi-Decadal Oscillation (AMO) in 1997 (Gray et al), the annual yield of the Colorado River has declined 30 percent and the present capacity of the entire reservoir system is now 55%. If Lake Mead drops another 20 feet, water curtailments for the states of Nevada and Arizona will commence (USBR). The AMO is predicted to last another decade or two, but the forcing of climate change (atmospheric loading of greenhouse gases) is expected to reduce the annual yield of the Colorado River by 20% in four decades (Rajagopalan et al).

Additionally, the consumption of Colorado River by the upper basin states (especially Utah and Colorado) in the next four decades is expected to increase by 1 million acrefeet. The Bureau of Reclamation declared in 2009 that consumption currently exceeds supply (<u>USBR</u>).

Though the flow of the Colorado River will continue to decrease over time, the sediment load and total dissolved solids will not. It is very reasonable to conclude that water quality will degrade in step with quantity during the next decade and beyond.

ECONOMIC FEASIBILITY

One of the largest deposits of hydrocarbons in the world is located where Utah, Colorado and Wyoming share common borders (Report by Colorado University). The hydrocarbons are not liquid, essentially locked into rock deposits as oil shale and tar sands (kerogen and bitumen, respectively). Not only are these hydrocarbons difficult to access, they are also low in quality. A considerable investment of money and fuel consumption is required to bring these hydrocarbons to market and convert them into useable products. Hence, the price of oil has to be high for a profit to be generated. The price of oil has been increasing lately for reasons that the supply of "sweet crude" has peaked both domestically and internationally.

We can assume that EER is placing their best foot forward to select a location for project success in order to secure funding from investors and to convince the agencies and the public that this enterprise is economically feasible and safe for the environment. That being said, we can assume that the data from this project is skewed toward the positive and does not properly reflect the actual cost of strip mining and processing tar sands in the Uinta Basin as a whole, nor does it reflect the true nature of the cumulative impacts to human health and the environment, especially as it relates to climate change forcing.

CLIMATE CHANGE

The decision for any development of fossil fuels needs to take into account the impact of that development on climate change. The Department of the Interior has ruled in Secretarial Order 3226 that it must "consider and analyze potential climate change impacts...when making major decisions regarding the potential utilization of resources under the Department's purview." A Federal judge recently Ordered the Bureau of Land Management (BLM) to comply with this rule in regards to BLM oil and gas leases. SITLA and DOGM should hold itself to similar standards as the BLM in decisions about the development of its resources.

Tar sands are one of the most destructive forms of energy in terms of greenhouse gases. Production of oil from tar sands bitumen produces three times the greenhouse gas pollution of conventional oil production. The climate impacts of those greenhouse gases will further exacerbate the pressure put of Utah's water resources by this project.

Unfortunately, the legislature of Utah is not sensitive toward reducing greenhouse gases and actually advocates for business-as-usual (<u>Deseret News</u>). Professors of earth science from Brigham Young University issued <u>a letter</u> urging the governor and the state legislature to adjust to climate change for reasons of preventing harm to people and wildlife. Unfortunately, the reaction of the state legislature was to instead demand that the professors issue an apology (<u>Salt Lake Tribune</u>).

WATER RIGHTS

EER will use water right (#49-2274) for 360 acre-feet, which has a 1958 priority date. The designated use is mining for tar sands in the Green River Formation. The state has approved an extension to develop the water to May 31, 2012. EER has yet to drill the well.

The water right is speculative

The proposed mine was reported on by the <u>The Associated Press</u> (03/28/2010), which stated, "first, the Calgary, Alberta-based company says it needs to raise \$35 million, and it acknowledged that could be tough because private equity groups turned skittish after the 2008 economic meltdown. Earth Energy said it is "de-risking" the project to lure investors. 'Until we raise our capital, we are unable to proceed with the project in any major way, but the minute we do, we are fully prepared and committed to advance.'"

In Utah, the restriction on speculation and waste is enforced by a recognition that the approval of an application is "only a preliminary step which gives the applicant the authority to proceed and perfect, if possible, the proposed appropriation by actual diversion and application of the water to a beneficial use. See Rocky Ford Irrigation Co. v. Kents Lake Reservoir Co., 104 Utah 202, 212--13, 135 P.2d 108, 113 (1943); Little v. Greene & Weed Inv., 839 P.2d 791, 794 (Utah 1992).

The adoption of the Prior Appropriation Doctrine, by definition, required the appropriator to apply the water to beneficial use, thereby precluding speculative hoarding in hopes of future gain. Neuman, 28 Envtl. L. 919, 963-64. "Because actual, beneficial use was required, no one could acquire all of the water and thereby monopolize a scarce and valuable resource. Nor could anyone speculate by holding water without using it, and then make a steep profit by selling to those who need it." *Id.* at 964. *See High Plaints A & M. LLC v. Southeastern Colorado Water Conservancy Dist.*, 120 P.3d 710, 719 n.3 (Colo. 2005).

If the state approves the permit therefore, it will fuel rampant mineral and water speculation in the Uinta Basin for the development of tar sands and oil shale that is not economically and technologically feasible, nor environmentally sensitive. Any proposed use of water that has a clear potential to be detrimental to the public welfare should not be approved. The State Engineer, therefore, is required to reject the Transfer Applications under §73-3-8(1).

Water is not available for the mine

Water experts predict that this over-appropriated river basin simply cannot accommodate the development of tar sands or oil shale. The PR Springs Mine, for example, would have a 1958 water right that would supercede existing projects with junior water rights which, for example, provide water for established communities along the Wasatch Front. Should shortages begin, conflict will occur and these matters will be determined after expensive battles in the court system.

The use of water for the mine will violate treaties with the tribes

The state of Utah's approach to developing tribal water resources has been overshadowed by the development of water projects by non-Indians despite the tribes possessing very mature priority dates.

The Department of Interior's Report of the Working Group on the Endangered Species Act and Indian Water Rights, proposes several measures to ensure that tribal water rights are not unfairly hampered by application of the federal Endangered Species Act. In an effort to address looming conflicts caused by unrecognized treaty water rights in water management decisions related to the ESA, the Report recommends limiting future distribution of water rights to non-Indians, when endangered species and tribal water rights may be impacted, in order to prevent the appropriation of water needed for survival of listed species even before tribal rights can be exercised. Unfortunately, to date, the Department of Interior has taken no action to implement their own recommendations.

In addition, there may be consequences to non-Indian water interests for the failure of the state agencies to figure tribal rights into the water management equation. In the case of the Colorado River, for example, the failure of the state to meet its obligations under the compact could become deeply problematic if tribal water claims are finally asserted. The Navajo Nation, for example, could claim up to 800,000 acre-feet of water from the Colorado River system.

WATER QUANTITY AND QUALITY

Consultation with water agencies is appropriate

The Colorado River watershed is vital to the physical and economic health of 25 million people in the lower basin states and Mexico. This project could pollute the Colorado River and the potential for a violation of the Clean Water Act is quite likely. It is our understanding that DOGM and EER are not compelled to consult with downstream users about this project because the affected area is on lands managed by SITLA. However, being a good watershed neighbor is a compelling enough reason to insist that DOGM and EER consult broadly with the state and federal agencies that manage Colorado River water supplies and critical habitat in below the Uinta Basin.

Water availability uncertain

The availability of the ground-water supply has not been determined sufficiently by the NOI. It is possible there is not enough water for the proposed project. The permit should be denied because the water source cannot be proven as adequate for the proposed operation.

Water quality may be compromised

The ground- and surface water supply for this operation could become brackish over time and may compromise the Salinity Control Program of the Colorado River basin.

The current layer of undisturbed tar sands is probably serving to retard the migration of toxic liquids to the aquifer below. Once the tar sand layer is removed, the aquifer below is probably vulnerable to contamination. The NOI has no data on what layer will protect the aquifer from surface pollutants from this mining/processing activity. Additionally, there is no data about fracture zones in the rock layers that would serve as a pathway for toxic chemicals to pollute the aquifer. Furthermore, there is no data on recharge rates or direction of water movements.

The NOI does not solve the problem of total dissolved solids (TDS) from the tailings that will be placed in the unprotected storage pits called #1 and #2. The expected TDS of the leachate remains unknown, according to the discussion in the NOI (pdf page 218). It is assumed the tailings in the mining pit will prevent TDS from entering ground- or surface or water supplies. The design of storage pits #1 and #2 will not protect the tailings from being washed into the deep canyons and eventually into the Green River after a cloudburst. Storm water runoff is described in greater detail below under Proposed Mining Operations.

Furthermore, samples for TDS analysis were taken from Crown Ridge and not from the PR Springs area (pdf page 205) and the accuracy of the report may not be correct.

AIR QUALITY

DOGM should deny mining operations because EER failed to disclose the full emissions from all aspects of mining and processing, such as Criteria Air Pollutants, Hazardous Air Pollutants, and Greenhouse Gases.

Air Quality Permit

The collecting of data by DOGM at the small test site on impacts to air quality from the preliminary refining process did not occur. In fact, there are no requirements for data collection for the proposed mining operation. The impacts on air quality remain unknown and so a proper determination of impacts to air quality cannot be properly assessed. It

is possible that the cumulative impacts in the area are already significant and in need of mitigation.

There is also no data on the cumulative effects of the long-term refining process for mining personnel. There is no statement about the exact composition and quantity of chemicals in the waste and the time necessary for the chemicals to biodegrade. It is possible these chemicals can impair human health/safety and the biological integrity of the watershed.

Additionally, there is no data available to determine if a Prevention of Significant Deterioration (PSD) permit is needed from the EPA. The NOI (pdf page 254) states that 300 barrels of the active ingredient for the chemical wash and 1,000 barrels of emulsion will be used per day. There is no data on what percentage is new material and what percentage is reused material, nor the quantity that is lost to evaporation or for what yet remains in the waste rock. DOGM should require that ERR provide this data for public review and for a determination of a PSD permit.

The affected area around the mine is close to, or has violated, the Federal ozone limit of 75 ppb (EPA). Utah Division of Air Quality is currently completing <u>a study</u> to determine the sources of the ozone in this area. DOGM must collect and provide data for the study under preparation so that a proper determination can be made about air quality in the present.

It is imperative that a regional air quality model be developed to address all current and foreseeable emission sources. All current 'di minimus' and permitted sources must be identified and included in this analysis. Similarly, reasonably foreseeable actions should be identified that may add to the potential emissions by this, or any other project.

PROPOSED MINING OPERATIONS

The proposed method of disposing the waste rock is indeed less expensive and convenient for mining corporations, but this practice is also controversial in Appalachia because it known to <u>pollute water resources</u>. Additionally, the waste rock will be vulnerable to debris flows from cloudbursts.

The river guiding community of eastern Utah, for example, is very familiar with the intense cloudbursts that occur on the Tavaputs Plateau during the monsoon period of late summer and early fall. It is also know that the frequency of debris flows in Desolation and Gray Canyons is quite high, compared with the rest of the Colorado Plateau. For example, a significant debris flow occurred on August 6, 2008 at Joe Hutch Rapid.

Drainage design is inadequate

The drainage design is compliant with a 10-year, 6-hour cloudburst, but the life of the mine and it's tailings is long enough to encounter a 1,000-year event. The NOI does not address the damage to the mine, storage areas, and areas downstream of the facility when such a significant cloudburst does indeed occur.

Replacement of topsoil

Table 9 in the NOI states that the overburden/interburden storage areas will be covered with six inches of topsoil and reseeded for stability. Soil is not a plentiful resource on the Colorado Plateau and the minimum required depth is probably impossible to achieve. Indeed, the activities of man have created a soil deficit condition on the Plateau. The NOI does not reference where this top soil will be located or harvested. For example, using topsoil from other areas will increase soil degradation in the watershed overall. It is also appropriate to mention that once soil resources on the Colorado Plateau are disturbed the rate of erosion actually increases (Belnap).

We also find it objectionable that non-native plants have been selected for revegetation.

Storage Areas #1 and #2 are inadequate in size

Figures 2a and 2b in the NOI show a detailed layering of fine and coarse materials in the storage areas. This layering proposed by the operator will require sorting and there is no discussion about how this process will be accomplished. The slopes are quite steep (up to 40%). Materials will likely slide to the bottoms and alter the stream channel. During this time period the areas will be subject to cloudbursts and there is no discussion about measures to prevent sediments from reaching Willow Creek.

Restoration of approximate original contours inadequate

Figures 4a through 4c clearly show that the original contours of the landscape will be completely altered. The mine pit can never be refilled to its original contours, since 50% of the overburden will be deposited into storage Pits #1 and #2. These proposed reclamation contours cannot begin to meet the requirement of Title 40 of Utah Code. For example, Transverse Mine Section W1-E1 has up to 100-feet lost from the original contour of the land and leaves a slope of 1.5 horizontal to 1 vertical below dump road #2. This slope is far steeper than the original slope of the land. The contour of the North Pit in Figure 4c has been changed from an uprising hill with a steep descent into a small valley to a depression that drops into the valley.

The NOI also does not mention that the material reclaimed in the mines will be compacted and probably for reasons to save money, but at the cost of slope failure.

ENDANGERED SPECIES

The Upper Colorado River Endangered Fish Recovery Program was established in 1988 by cooperating state and federal agencies and has spent millions of dollars to improve the critical habitat of the Green and Colorado Rivers. The affected area will drain into Willow Creek and then the Green River above Desolation Canyon, which is a refuge and nursery of endangered fish.

Since the management plan for mitigating storm water is inadequate, a threat to the critical habitat of the Green River does indeed exist.

The NOI acknowledges the presence of Mexican spotted owl and sage grouse in the immediate area and claims that the mining operation will not disturb their habitat. Potentially 5,000 acres of land could be strip mined for petroleum bearing rocks in the vicinity of the PR Springs mine, which would indeed affect these species significantly and hurry their eventual listing as a federally endangered specie and the subsequent creation of yet more conflict revolving around compliance with the Endangered Species Act.

CONCLUSION

The controversies surrounding the Colorado River, and the documented impacts of fossil fuels development are already too significant to be further complicated by the strip mining tar sands in the near-headwaters of the most impaired river basin of North America. This is especially critical if the activity expands to full development on state and federal reserve lands in the entire Uinta Basin. DOGM should deny the permit based upon the above-stated, anticipated impacts to water and air quality, and both the legal and substantive inappropriateness of permitting this operation in the absence of a comprehensive, regional and programmatic review.

Sincerely yours,

John Weisheit

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